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Visit our website and Plant Propagation Database

www.understorey-network.org.au

The Understorey Network would like to acknowledge the support of the Australian Government.



Australian Government

- The Power of Pollination Part 2 Phil Watson
- A conversation with the Staubmanns of Habitat Plants Anna Povey

Coordinators News

Happy New Year - I hope you have a prosperous and successful 2009!

Growers – I hope you have planted your seeds and are noticing some signs of success. When your plants do germinate and grow, don't forget to thin out to one plant per tube, in order to get a single strong plant in each tube, ready to plant out in autumn.

If you are growing for a project or a private landholder and your plants look like they won't grow for one reason or another, don't panic! Let me know as we have some backup plants at the Tolosa Community Nursery that may be suitable replacements.

The Understorey Network is going through a transition in how we operate. I am receiving more requests for user-pays workshops, through local council, landcare groups and the NRM regions. At present it is especially busy as the federal Coastcare grants have been announced and we will be providing workshops for several grant recipients around the state. We will be conducting workshops on seed collecting, native plant identification and native plant propagation for various target community groups. This is a bonus to our ability to generate income and provides a buffer against gaps between funding. These events will generally be open and free for our members to join in too, depending on the sponsoring organisation.

The 'Caring for our Country' federal funding is very specific in its targets and favouring large projects with many partners. I will be negotiating for us to be part of some of these projects. If we are successful in obtaining funding through this, we will have the financial security to provide improved services to all members.

Message from the President

I hope you all had a happy Christmas and are looking forward to a year that does not fly as quickly as the last one seemed to do! For the Understorey Network, 2009 will be a year of exciting new challenges, as we become more entrepreneurial in our quest to broaden our funding sources.

As we move towards a user-pays budget, we will be reviewing the Growers Scheme costs which to date has been heavily subsidised - naturally we will be trying to keep costs down as much as possible.

Our focus will always be our members. These now include individuals, schools, colleges, councils, and environmental groups large and small.

Connections have been set up between school children and the residents of homes for the elderly. So you can see the influence of the USN as it continues to expand exponentially, limited only by the number of hours in the day. We anticipate an exciting few months ahead and I urge you to take advantage of the field days and workshops which will be offered around the State throughout the year.

All the best to you all for 2009. May all your plants grow well and may we get lots of rain at the right time!

Anne Griffiths President

Thankyou ANZ Bank!

The ANZ Bank is supporting this year's Grower's Scheme with an ANZ Staff Foundation Grant grant of \$4,653.These funds help to cover the costs of supplying, organising and running the Grower's Scheme.

The latest Grower's Scheme has 85 growers registered. Each grower propagates an average of 250 plants giving a total of 21,250 native tubestock growing in backyards across Tasmania – which is a substantial contribution to increasing the extent of our native vegetation!

Staff from the ANZ bank have contributed to the grant, and will be invited to attend some seed collecting field days.



Annie Griffiths accepts a rather large cheque from ANZ staff member Kate Wagner at the Tolosa Nursery.

Break O'Day Understorey Network Branch

The USN Break O'Day Branch has got off to a wonderful start with many members coming together to enjoy various events:

Our first event was held at the Drummond's property and was well attended where propagation material was mixed and sorted. Field trips have included a Bush Tucker Talk and Walk at Binalong Bay and seed collection event at Skyline Tier, Beaumaris. Todd Dudley kindly donated his time, skills and knowledge to make these events happen.

Alison Hugo East Coast convenor

The Power of Pollination Part 2

By Phil Watson

Pollen presenter – an example of intelligent design

The Australian Protea family (Proteaceae) are ideally suited to bird and mammal pollination as a consequence of their cunningly designed pollen presenter. This long stalk-like structure collects pollen on its stigmatic tip as it brushes past the internal anthers once it starts to open out. This flower's pollen presenter continues to unfurl from the body of the flower before finally prominently positioning itself above the main body of the flower. With the bird's arrival and subsequent desire to probe into the flower's nectary, the honeyeater is dusted by the pollen presenter on its forehead, before departing. Having successfully off-loaded the pollen, the pollen presenter's stigmatic tip is now free to receive pollen carried by the next appropriately dusted honeyeater. The spectacular, nectar filled Spider Flowers (Grevillea sp.) are the best known flowers with pollen presenters. However, the Hakea (Hakea sp.), Waratah (Telopea sp.), and Guitar Plant (Lomatia sp.) amongst others all have similar attributes.

Kangaroo Paws are not just a pretty flower

In Western Australia, the famous Kangaroo Paws Anigosanthus sp. provide an attention grabbing example of floral charisma and superb design for bird pollination. Not only do they form sturdy landing platforms for honeyeaters to exploit their nectaries, but during their flowering period each flower spike is architecturally designed to offer one solitary receptive bloom at a time. Daily one flower pivots boldly into position while the spent flowers continue to hinge out of prominence. Their multi coloured flowers have pollen laden frilly tips perfectly poised to transfer pollen onto the foreheads of nectar seeking birds. Since the bird's fine bills accurately reflect the curvature of the tubular corollas leading to their deep nectary, this adaptation has granted them privileged access otherwise denied to pollen raiders.

Honey eaters love tubular bells

Fine billed honey eaters rely on reddish coloured, tubular flowers for nectar supplies during winter and early spring when their staple food sources are diminished. Many native flowers benefits from this bird pollination service include the brilliant red-orange Christmas Bells

(Blandfordia punicea) and the exquisite red bells of the Climbing Heath (Prionotes cerinthiodes), Native Fuchsias (Correa sp.), Candle Heaths (Richea spp) and Native Heaths (Epacris spp). All of these have evolved the necessary key bird-alluring attributes which feature odourless, pendant, tubular corollas, with the peaking of their diurnal nectar flows in winter and early spring.

One of the most outstanding Tasmanian examples uncovered by recent research of birds pollinating tubular flowers is that of the dry sclerophyll understorey shrub from eastern Tasmania known as the Spreading Pink berry Leptecophylla divaricata (Epacridaceae). This has the honour of being the first recorded birdpollinated dioecious plant in the Australian flora. The tubular pendant corolla of its flower "has evolved in a clade otherwise conforming to the typical dioecious pollination syndrome of small white flowers serviced by small insects"¹

It is reported that characteristically their male flowers are larger and earlier flowering and produce much more nectar than the female flowers. The researchers also noted that the species had a high level of self-fertility and suggested that this dioecism assisted their outcrossing chances.

Reflecting again on the overseas honey eaters, these sunbirds, humming birds etc, they have highly specialised 1:1 relationships based on their long curved beaks being perfectly adapted to access the deep nectaries. Due to these flower's showy nature and desirability, some of these plants have now become environmental weeds although luckily in Tasmania they cannot be open-pollinated by birds. These include the gorgeous red bells of the Chilean Bellflower, Lapageria rosea, old garden favourite Agapanthus Agapanthus africanus, Bugle Lily, Watsonia meriana, African Cornflag. Montbretia, Chasmanthe floribunda and Crocosmia x crocosmiiflora .

¹ Higham R.K and McQuillan P.B. *Cyathodes divaricata* (Epacridaceae) the first record of a bird-pollinated dioecious plant in the Australian flora Australian Journal of Botany 48 (1) 93 - 99

Eastern Spinebill feeding on Epacris sp.



Pollination by little furry fellows

Current estimates indicate over 25 species of mammals actively feeding on nectar pumped from flowers of Australian trees. Of these there are 7 or more species of possums, arboreal marsupials and gliders involved in pollination as well as a number of bats and rodents. Interestingly one important furry pollinator is the smallest glider in the world, known as the feather tail or pygmy glider (Acrobates pymaeues). It feeds on pollen, nectar and insects in the eastern Australian coastal forests. Like the mountain pygmy possum (Burramys parvus), little pygmy possum and eastern pygmy possum (Cercatetus lepidus & C.nanus) they are recoanised as valuable contributors to pollination of dry woodlands trees from the myrtle and protea families.

Another engrossing species is the Western Australian mouse sized, honey possum (Tarsipes spenserae) known by the aboriginal name of *Noolbenger*. It has a very slender, long whip-like, tapering prehensile tail giving it remarkable agility amongst the nectar bearing flower clusters. It is ideally suited to suck up blossoms, nectar, pollen and microscopic insects with its very elongated, tubular snout and a brush-like tongue similar to that of a honey eater. Akin to the other gliders and possums strong smell receptors allow it feed nocturnally on nectareous flowers. In the day it hides in nests of grass and fur constructed in dense foliage such as found in grass tree tops.

Bats and flying foxes also play a significant role in pollination and seed dispersal for both native and exotic trees. For example, the Grey-headed flying Fox, like other flying foxes, flies long distances across cleared and urban landscapes to forage and subsequently transfer pollen amid flowering gums such as the Spotted Gum *Corymbia maculata*). Of note is that these furry pollinators, bats and flying foxes do not require

² Rowe M.T. RAOU Honeyeaters of Hawks Nest & Tea Gardens A Guide National Parks NSW nectar to survive, but rather, enjoy nectar as a junk food in an opportunistic way.

The Southern Snow Skink's contribution

The key role which the Southern Snow Skink plays in the pollination of the alpine scoparia (*Richea scoparia*) is another enthralling example of mutual benefits being received as part of the mating game.

In order to protect its stamens and stigmas against torrid alpine conditions the flowers surrounds its delicate reproductive parts with a fused petal capsule. In doing so, it restricts access by seed dispersers and insect pollinators. During summer, the mature flowers produce large amounts of nectar which worryingly remains trapped within the capsule. Slithering to the rescue is the Southern Snow Skink which aggressively tears apart the capsule in order to satisfy its voracious appetite for the nectar. With the floral parts finally exposed, the opportunistic pollinating insects can do their job and its seeds can subsequently be dispersed.

Pollination ecology – a sentinel for climate change

Everything is being affected by global warming's environmental changes.

It is already established that over the past 30 years the world's alpine and subalpine flora is flowering on average 2 to 3 weeks earlier. The current rate of change is more rapid than the life cycles of their insect pollinators.

Equally concerning is progressive the contraction of cold adapted flora's range to both higher altitudes and higher latitudes. Disastrously, this movement is not matched by the adaptive capacity of their pollinator. Today across the SE Australia and Tasmania alpine and subalpine regions there is a major loss of snow patches coupled with early spring thaws. This affects bird migration and breeding patterns, which is now often compounded when followed by a late snow dumps and killing frosts that disrupt bird and marsupial breeding, winter hibernation and access to nectar sources. A graphic example of this is in the Mt Kosciusko National Park³ where populations of the endangered mountain pygmy possum have crashed. In concert with this, the higher levels of ultraviolet radiation has cause the loss of rare alpine plants and their pollinators, whilst the warmer, drier conditions are causing a steady demise of others such as the Alpine Sky Lily (Herpolirion novae-zelandiae) and its pollinators.

³ Roslyn Beeby 8/4/06 *Kosciuzko's climate crisis* Canberra Times (ACT)

It is obvious that all these environmental impacts will disrupt synchronies in the timing of important biological events such as the flora and fauna interrelationships. On this premise, it could be anticipated that pollination ecology may well become one of the key harbingers of Climate Change.

Given the finely tuned time and space interrelationships occurring between the many and varied symbiotic and 1:1 relationships, major impacts can be expected. For example the flowering of up to 500 terrestrial orchids are perfectly time and located to match the life cycle of their one and only species of thynnid wasp pollinator. Global warming is decoupling these relationships with resulting extinctions!

This disruption of synchrony will act to amplify the more subtle changes to well known environmental indicators. Consequently, pollination ecology will become a more sensitive indicator of climate change than the environmental variables themselves.

Positively speaking, there is better news in relation to our bird and mammal pollinators. These less specialist relationships will provide an inherent robustness against the predicted global warming impacts compared to the sensitive mutual relationships entertained by their overseas counterparts.

The many other Pollinators

It is obvious that during peak flowering season, wildflowers are enveloped in clouds of other pollinating insects such as flies, wasps, gnats, beetles, moths and butterflies, all busily leaving their footprints in the pollen. Another article will explore their important contributions to pollination ecology.

Recommended Readings

1. Ford, H.A. (1989) *Ecology of Birds - An Australian Perspective -* Surrey Beattie and Sons Pty. Ltd. Chipping Norton

2. Encyclopaedia of Australian Wildlife (1997) Readers Digest

- 3. Gilbreath A. (1979) *Creatures of the Night* David Mc Kay
- 4. Forshaw, J.M. (2002) *Australian Parrots* Alexander Editions, Qld
- 5. Micah Visoiu & Sarah Lloyd (2003), *Bugs, Birds, Bettongs & Bush, maintaining habitats for fauna in Tasmania* Nature Conservation Report 03/4
- 6. S.L.Buchmann and G.P.Nabhan (1996) *The Forgotten Pollinators*; Island press, USA
- 7. K.Faegri and Van der Pijl (1973) *The Principles of Pollination Ecology*; Collins London
- 8. Churchill, Sue (1998) *Australian Bats* New Holland Publishers, Sydney

A conversation with the Staubmanns of Habitat Plants.

by Anna Povey

We Understorey Networkers often become very fond of our local native plant sellers, who tempt us with delightful plants, including tricky ones we haven't been able to propagate ourselves. Recently I caught up with the ever-smiling and informative owners of Habitat Plants at Liffey, Herbert and Sally Staubmann, and will share with you some of our conversation (edited).



Propagation workshop at Habitat Plants

I started with asking how they got interested in native plants.

Herbert - I guess it started with doing some windbreaks in the Midlands. It seemed to make sense that you should look at the landscape. The choice was between radiata pines and what would maintain the landscape. Why put European trees in an Australian landscape? So then I was buying plants from the forestry nursery, and they didn't have everything that I wanted. They had some, and they grew some on contract for us, but it was hard to get all the species that I wanted.

Sally – Hard to get Lomandra!

Anna – It seems like you were the ones who introduced the idea of planting Lomandra, were you? *Herbert* – Yeah, people were shocked! Although there were people soon after that, people working for the Hydro...someone specified Lomandras for a revegetation job. There was this funny phone call where a works supervisor rang up, and was trying to read out *Lomandra longifolia* off his order sheet. Someone yelled out in the background, "Tell her you want some BLOODY SAGGS!"

Sally – That would be about 1990. That was when we put out our first list.

Anna – How have you found attitudes have changed since you started Habitat?

Sally – Lots. It's been a slow process but it's been Landcare too has helped that. You know, just the growing awareness of the environment and native plants. 15 years, it's just slowly crept up.

Habitat has its own retail nursery at Liffey and an outlet in town at Allan's in Prospect. Agfest is a major event for them, where they have a stall each

year. Other native plant growers also have outlets at various nurseries. Yet it is still common to find exotics and mainland natives most prominently displayed in conventional nurseries.

Herbert – Demand is still growing, definitely.... I would say that with issues like water, for example, native plants have slowly moved from the back corner of the nurseries out a bit further.

Anna – I like what you've done with your visitor centre. Did you build everything at your nursery? Your house?

Herbert and Sally – Pretty well. Yep. With a bit of help.

Sally – Yes, the retail nursery - the mudbricks. We have a friend who's a builder who helped us put it up.

Anna – Haven't you made your potting mix mixer, pulling together bits of leftover machinery?

Herbert – Yep, bush engineering, again with the help of a good friend.!

Sally – Well, that's changed. It used to be about 94 little concrete mixer-loads a week. Now we've got the big one.

We had some discussion about the pleasures of living and making a living at home in Liffey (Herbert is happy when he realises he hasn't left home in two weeks!).

Herbert – I want to find people who are prepared to plan ahead. Like really plan ahead. Whether it's a tree planting day, or the West Tamar silt ponds.... There are a few now, but it's still a very low percentage of our plants go into well-planned projects.

We discussed the better results of projects with some care, like the fantastic Tailrace plantings cared for by West Tamar Council groundsman, Tony Roberts. Unfortunately some projects that started with community enthusiasm fail as people move on. Failures are particularly upsetting when they are school projects (guidance is needed). Often local authorities neglect native plantings too.

Herbert – We need good horticulturists, who at the moment are looking after the annual beds or conservatories like in City Park, people who are really enthusiastic about horticulture we need new people (to develop native gardening), and that's going to happen I reckon.

Sally – WA is amazing like that. The highways are all planted out with natives... carefully.

Herbert – A couple of beds in the Melbourne Botanical Gardens are beautiful, with just Themeda under established ghost gums. Just the white trunks and the (Kangaroo grass)..... You can see they put the maintenance into it – they weed them.

The inputs in our annual beds here are huge!! If we could just put some of them under natives, and keep some of the budget there to look after them. A lot of the native plantings are the low budget plantings – put them in and then walk away.

Anna - What is ahead for your nursery for the next 15 years?

Sally – Keep doing what we're doing, just a little bit better. Systems in the nursery to be more efficient, keep the price of our plants down, new ideas in the retail nursery, keeping it looking good, germination tricks!! I hear someone has cracked native cherries, in Victoria, Will (from Plants of Tasmania Nursery) said.

Herbert – There's a lot of work to be done in that area, propagation. But there's also a lot of work to be done in trialling native plants in different situations. Selection, too – if you want reliable native plants to replace some of the exotics, then you need to do selection. We do a bit of that, yeah.

I commented that Herbert and Sally put in a lot of time talking to people and sharing their knowledge.

Herbert – We were sort of pioneering it (natives) for a while, weren't we? That was part of our aim, to educate...

Sally – It still is! That's important. We like our nursery to be on a different level, where people can come and get information one-to-one. That's more important to us than having the cheapest plants.

The recent USN day at Habitat covered propagation, including cuttings. Herbert and Sally stress the importance of having patience for success. Cuttings take a long time to root, and some seed can take years to germinate.

Sally – We had some Bellendena (mountain rocket) seed come up after 4 years! But it all came up – three years of seed all came up in the one year. Some of it fresh and others up to 4 years old..... We've been sowing them for some time, but we've thrown a lot out over the years! We've grown some from cuttings. But something must have worked that year.

I asked what are the best things about having Habitat.

Herbert – The highlights are often just plant things.

Sally – Yep, plant things, germination, finding forms of plants... It becomes an addiction really. A good germination of huon pine, deciduous beech...It's all exciting isn't it?

Well, the discussion flowed for quite a while, but no room here.

Thankyou very much, Herbert and Sally, for sharing your addiction with us!



Wombat shift change at Habitat nursery Liffey



Oliver Strutt leading the wildflower walk at Lune River.





Ogilvie High School student planting seeds with residents of the Mary Ogilvie Home.

What's Happening

* Chauncy Vale Open Day * Sunday, February 1^{st} 2009 12 noon.

The Friends of Chauncy Vale are hosting an open day. This will be a celebration of the reserve and include an exhibition by Bob Brown, live music plus guided tours of the reserve and a seed collecting session with the Understorey Network.

Bring a hat, drink and lunch

Directions: Turnoff off the Midlands Highway at Bagdad onto Chauncy Vale Road, and travel several kilometres to signposted reserve. *Please rsvp if you would like to attend a field day.*

★<u>Summer Seed Collecting</u>★ South: Lune River

Sunday 15th February

We will be revisiting Deborah Wace's property with local landcare groups. Here there is an abundance of species in various ecosystems, from coastal to dry woodland and buttongrass moorland.

11- 2pm

Please rsvp to Janelle Dennis at Huon Council, for directions also. Ph: (03) 6264 0358 jdennis@huonvalley.tas.gov.au

South: Fort Chimo (Conningham), Sunday 22nd February 11am-2pm

We revisit this amazing coastal property just South of Conningham with local landcare groups. A good sturdy pair of walking shoes is recommended. We will provide tea and biscuits, bring your own lunch. Please rsvp to Janelle Dennis at Huon Council, for directions also. Ph: (03) 6264 0358 jdennis@huonvalley.tas.gov.au

South: Murrayfield, North Bruny Island Wednesday 25th February 10:30am -2:30pm

Come along and have a tour of this spectacular island grazing property, while collecting seed for swift parrot and forty spotted pardalote habitat rehabilitation. *Email/ring Ruth Mollison for car pooling on the ferry and directions. Ph.6234 4286 or email <u>understorey@gmail.com</u>*

East: Bay of Fires (St Helens) Sunday 1st March 10am

We will be visiting a private property in this beautiful coastal area to collect seed for camp site rehabilitation. For more information contact Alison Hugo , Community Support officer, Break O'Day NRM (north) 0488 677 727

North East: Waterhouse Camp site Wednesday 4th March 10:30am

We will be collecting seed for campsite rehabilitation from coastal campsite areas around Herbie's landing near Tomahawk. Meet at the turnoff to Homestead Rd, from Waterhouse Rd at 10am.

For more information and to rsvp, phone Jay Wilson, NRM facilitator at the Dorset Council on 6352 6537

★ Field trip & talk ★

Winifred Curtis Reserve, Scamander Sunday, Feb 1st 2009 11:30am

Tim Rudman, Senior Vegetation Scientist with DPIW, will be giving a talk on managing **Phytopthera** followed by a guided walk with Paul Frater about the botanical treasurers within this special reserve. For more information contact Alison Hugo, Community Support officer, Break O'Day NRM (north) 0488 677 727 Understorey Network PO Box 4535 Bathurst Street HOBART TAS 7000

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